

1 Claims

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3 1. An implantable replacement joint comprising a
4 first component for attachment to a first bone
5 portion; a second component for attachment to a
6 second bone portion; and a flexible component
7 extending between the first and second components;
8 wherein each of the first and second components has
9 a respective bore and the flexible component is
10 received within a cavity formed by the bores of the
11 first and second components; and wherein the
12 flexible component is freely-floating within the
13 cavity.

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15 2. A replacement joint as claimed in claim 1,
16 wherein the first and second bone components are
17 adapted to engage first and second bone portions
18 located on opposite sides of a joint.

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20 3. A replacement joint as claimed in claim 1 or
21 claim 2, adapted to replace a joint selected from
22 the group consisting of wrists, fingers, toes, knees
23 and elbows.

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25 4. A replacement joint as claimed in any preceding
26 claim, wherein the first and second components are
27 adapted to be anchored within cavities in the
28 respective first and second bone portions.

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30 5. A replacement joint as claimed in claim 4,
31 wherein the first and second components are shaped
32 to be an interference fit within the respective

1 first and second bone portions.

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3 6. A replacement joint as claimed in claim 4 or
4 claim 5, wherein the first and second components
5 have formations on their outer surfaces to engage
6 the inner surfaces of the cavities in the first and
7 second bone portions.

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9 7. A replacement joint as claimed in claim 6,
10 wherein the formations on the outer surfaces of the
11 first and second portions are screw threads, annular
12 or semi-annular ridges or expansion fins.

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14 8. A replacement joint as claimed in any preceding
15 claim, wherein the cavity formed by the bores in the
16 first and second components is longer than the
17 flexible component so that the flexible member can
18 move axially within the cavity.

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20 9. A replacement joint as claimed in any preceding
21 claim, wherein the cavity formed by the bores in the
22 first and second components is wider than the
23 flexible component so that the flexible component
24 can move laterally within the cavity.

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26 10. A replacement joint as claimed in any preceding
27 claim, wherein the first and second components have
28 bearing surfaces that articulate against one another
29 when the device is made up.

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31 11. A replacement joint as claimed in claim 10,
32 wherein the flexible component and the bores in the

1 first and second components extend through the
2 bearing surfaces.

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4 12. A replacement joint as claimed in claim 10 or
5 claim 11, wherein the bearing surfaces are arcuate
6 to promote pivotal movements of the first and second
7 components relative to one another.

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9 13. A replacement joint as claimed in claim 12,
10 wherein the bearing surface of the first component
11 is convex along a first axis and the bearing surface
12 of the second component is convex along a second
13 axis, the first and second axes being mutually
14 perpendicular.

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16 14. A replacement joint as claimed in any preceding
17 claim, wherein the first component is pivotable
18 relative to the second component around at least one
19 axis.

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21 15. A replacement joint as claimed in claim 14,
22 wherein the at least one pivot axis is movable
23 relative to the replacement joint.

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25 16. A replacement joint as claimed in any preceding
26 claim, wherein the first component is pivotable
27 relative to the second component around more than
28 one axis.

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30 17. A replacement joint as claimed in claim 16,
31 wherein the first and second components are
32 pivotable relative to each other around two

1 perpendicular axes.

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3 18. A replacement joint as claimed in any preceding
4 claim, wherein the first and second components are
5 made from a relatively harder material than the
6 flexible member.

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8 19. A replacement joint as claimed in any preceding
9 claim, wherein the first and second components are
10 made from a material selected from the group
11 comprising stainless steel, metal alloys, plastics
12 materials, ceramics and carbon fibre composites.

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14 20. A replacement joint as claimed in any preceding
15 claim, wherein the flexible component is resilient.

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17 21. A replacement joint as claimed in any preceding
18 claim, wherein the flexible component comprises a
19 material having inherent flexibility.

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21 22. A replacement joint as claimed in claim 21,
22 wherein the flexible component is made from silicone
23 or polyurethane.

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25 23. A replacement joint as claimed in any preceding
26 claim, wherein the flexible portion has a hinge.

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28 24. A replacement joint as claimed in any preceding
29 claim, wherein a bearing plate is provided between
30 the bearing surfaces of the first and second
31 components.

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1 25. A replacement joint as claimed in claim 24,
2 wherein the bearing plate is formed of metal or
3 ceramics.

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5 26. A replacement joint as claimed in claim 24 or
6 claim 25, wherein the bearing plate is of a
7 different material from the first and second
8 components.

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10 27. A replacement joint as claimed in any of claims
11 24 to 26, wherein the bearing plate has arcuate
12 surfaces.

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14 28. A replacement joint as claimed in any of claims
15 24 to 27, wherein the bearing plate has two pivot
16 points, and the first and second components are
17 adapted to pivot on opposite faces of the bearing
18 plate.

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20 29. A replacement joint as claimed in any of claims
21 24 to 28, wherein the bearing plate has extensions
22 that limit the movement of at least one of the first
23 component and the second component relative to the
24 bearing plate.

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26 30. A replacement joint as claimed in any preceding
27 claim, wherein the clearance between the flexible
28 component and the bores in the first and second
29 components increases towards the mouths of the
30 bores.

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32 31. A replacement joint as claimed in any preceding

1 claim, wherein the flexible component is free to
2 move axially, laterally and rotationally within the
3 cavity formed by the bores of the first and second
4 components.

5
6 32. A replacement joint as claimed in any preceding
7 claim, wherein the spacing between the bores of the
8 first and second components and the flexible
9 component is smaller around the ends of the flexible
10 component than the corresponding spacing between the
11 bore mouths and the middle of the flexible
12 component.

13
14 33. A replacement joint as claimed in claim 32,
15 wherein the bores of the first and second components
16 flare outwardly towards the bore mouths.